ABSTRACT OF THE DISCLOSURE

In a chemical mechanical polishing method for polishing a low-k material insulating layer formed on a semiconductor wafer, aqueous abrasive slurry composed of a water component, an abrasive component, a first additive for making the low-k material insulating layer of the semiconductor wafer hydrophilic in nature, and a second additive for adding acidity to the aqueous abrasive slurry, is prepared. The aqueous abrasive slurry is feed to a rotating polishing pad having a larger diameter than that of the semiconductor wafer. The low-k material insulating layer of the semiconductor wafer is applied and pressed onto the rotating polishing pad while rotating the semiconductor wafer in the same rotational direction as that of the rotating polishing pad, whereby a polishing rate of the low-k material insulating layer of the semiconductor wafer is improved.